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THE GENUS *TORENIA* LINN. IN WESTERN PENINSULAR INDIA

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ABSTRACT

The paper presents a taxonomic study of the seven species of *Torenia* native to the wet, western part of peninsular India. *T. asiatica* L. has often been included among these. But it is actually a plant from S. E. Asia and not native to this region. The plant usually called *T. cordifolia* is different from *T. cordifolia* Roxb. and has been described as *T. indica* sp. nov. Another plant, often confused with *Lindernia crustacea* (L.) F. v. Muell., has been described as *T. lindernioides* sp. nov. The paper also includes two new records for the region, *T. violacea* (Azaolo ex Blanco) Pennell and *T. thouarsii* (Cham. & Schlechtend.) O. Kuntze.

Torenias are well known garden annuals. The commonest garden representative of the genus in western India is *T. fournieri* Lind., an elegant introduction from S. E. Asia. Besides this plant, there are several species occurring spontaneously in the wet, western part of peninsular India. The identity of some of them is not easy to determine. A few others have been inadequately described. A taxonomic study of the genus in so far as it occurs spontaneously in this region might not, therefore, be out of place.

The genus *Torenia* was first described by Linnaeus in the dissertation Nova Plantarum Genera 45, no. 1108, 1751. It was soon validated in Sp. Pl. 619, 1753 and Gen. Pl. ed. 5, 270, 1754. The Linnaean generic type *T. asiatica* was based on a specimen (LINN 770. 1) obtained from and named after Olof Torén who collected it around Canton in 1748-49. Linnaeus' specific description included a reference to Van Rheede, Hort. Mal. 9: 103, t. 53, 1698. Van Rheede's plant was collected around Cochin on the Malabar Coast and was illustrated and described under its Malayalam and Konkani names *'Kaka-pu'* and *'Caclá-dolo'* (crow's eye).

The Linnaean reference to *Kaka-pu*, the apparent similarity between the Cantonese and Cochin plants, as well as the indiscriminate use of the word 'Indies' to denote both China and India, caused many botanists to regard *T. asiatica* as native to western India. Gamble, however, raised a doubt. He did not list *T. asiatica* L. in his Flora of the Presidency of Madras. Further, he split up the plants described under *T. asiatica* in Hook. f. Fl. Brit. Ind. 4:277, 1884. into distinct species. A study of the Linnaean type as well as of specimens from western India seems to justify Gamble's view. Consequently, *T. asiatica* L., a plant originally from S. E. Asia, is excluded from this study.

This paper besides presenting two new records for the region, also proposes two new species. The reasons justifying the description of these as new species are put forward in the systematic treatment that follows:

KEY TO THE SPECIES

A Calyx broadly winged :
  B Calyx wings usually cordate at base, not decurrent on pedicel ... 1. *indica*
  BB Calyx wings attenuated at base, decurrent on pedicel ... ... 2. *violacea*
AA Calyx not broadly winged :
  C Fruiting calyx ribbed :
    D Flowers in axillary clusters ; corolla less than 1 cm long ; fruiting calyx less than 0.8 cm long ... ... 3. *thouarsii*
    DD Flowers solitary, axillary; corolla more than 2 cm long ; fruiting calyx more than 1.2 cm long ... ... 4. *bicolor*
  CC Fruiting calyx not ribbed :
    E Corolla less than 1 cm long ... 5. *lindernioides*
    EE Corolla more than 2.5 cm long:
      F Stem glabrous; corolla tube yellow or white ... 6. *travancorica*
      FF Stem hirsute ; corolla tube not yellow or white ... 7. *hirsuta*

1. **Torenia indica** sp. nov.

This plant has been taken for *T. cordifolia*·Roxb. in most of our Herbaria and floristic works. A careful study of the pertinent literature and of numerous fresh as well as preserved specimens has led us to conclude that the present plant is not the one described by Roxburgh.

T. cordifolia Roxb. was clearly described by its author in Pl. Corom. 2:32, 1802 and pictured on t. 161 of the same work. An earlier, independent and authentic painting of this plant exists in Calcutta in the Roxb. Ic. no. 315 (*ined.*).

Roxburgh describes the leaves of this plant as 'opposite, short petioled, hearted, saw'd, a little hairy, one inch long and three quarters broad'. The calyx is 'large, bellied, five-angled, two-lipp'd ; upper lip slightly three-tooth'd; the under lip simply pointed, permanent'.

The two authentic illustrations of *T. cordifolia* although picturing different plants, agree perfectly among themselves as well as with the above description in morphological characters. The leaves are short-petioled, clearly cordate or truncate at base. The calyces are not cordately winged in spite of the fact that several flowers have been pictured.

The plant described by Roxburgh does exist. Bonati in Lecomte, Fl. Gen. Indoch. 4:396, 1927 describes a plant with the typical leaves of *T. cordifolia.* Indeed, in his key to the genus *Torenia* (*ibid*, 389) Bonati separates this species from the rest on the basis of leaf-shape, 'feuilles supérieures sessiles, tronquées ou subcordiformes à la base- *cordifolia*'.

However, most Indian floristic works have applied the name *T cordifolia* to a plant with distinctly cuneate, decurrent leaf-bases and cordately winged calyx lobes.

The cause of this change may be the plate labeled *T. cordifolia* by Hook. in Bot. Mag. t. 3715, 1839, based on a plant grown in Edinburgh in Oct. 1838 from seeds collected in Saharanpur. This plate represents our plant and not Roxburgh's. The discrepancy has been noted by Hook. f. in Bot. Mag. t. 6797, 1885 where he comments on the inappropriateness of using the epithet '*cordifolia*' to describe a plant with non-cordate leaves.

It might be argued that the plant described here is only a variation of Roxburgh's plant. We have examined several specimens from various parts of India. They constitute a distinct taxon that is easily distinguishable from *T. cordifolia* Roxb. as pictured and described in the original works.

Descriptio: Herba annua; *caules* 4-goni, tum erecti tum nodis infimis radicantes, angulis laeviter ciliatis; *folia* opposita, decussata, petiolata, ovata, serrata, petiolis usque 1.5 cm longis, pilosis, laminis penninervis, basi cuneatis super petiolos decurrentibus, usque 2 x 3.5 cm. *Flores* in axillis foliorum superiorum congregati, pedunculis floriferis 1 cm, fructiferis vero 1.5 cm longis, 4-gonis, ciliatis; calyces bilabiati, c. 1 cm longi, labi superiore tridentat, inferiore bidentat alati, alis ciliatis, basi cordatis, non decurrentibus; *corollae* bilabiatae, albae laeviterve violaceae, 1.5 cm longae, tubo calycem aequante, basi distento, intus inferne piloso, labiis rotundatis, inferiore vero trilobato. *Stamina* 4, didynama; *filamenta* inferiora longiora, edentula et ad invicem curvata; *antherae* perfectae, divaricatae. *Ovarium* ovoideo-conicum, disco hypogyno insidens; *stylus* filiformis; *stigma* bilamellatum. *Capsula* oblongo-elliptica, inclusa, septicida, seminibus pluribus foveolatisque.

Holotypus: *Saldanha* 6733 lectus prope Waghai die 26 Aug. 1961 et in Blatter Herbario (BLAT.), Collegii Sti Francisci Xaverii, Bombay, positus.

Isotypi: *Saldanha* 6730, 6732, 6735.

Description: Annual herbs. Stem 4-sided, erect or sometimes rooting at the lower nodes, moderately ciliate on the angles. Leaves opposite, decussate, petiolate, ovate or ovate-lanceolate, penninerved, pubescent especially on the nerves, cuneate at the base, decurrent on the petiole; petioles hairy, up to 1.5 cm long; lamina up to 2 x 3.5 cm. Flowers crowded together in the axils of the upper leaves; flowering pedicels 1 cm long; fruiting 1.5 cm, 4-sided, ciliate. Calyx bilipped, c. 1 cm long; upper lip 3-toothed; lower lip 2-toothed; wings ciliate, cordate at base, non decurrent. Corolla white or light violet, bilipped, 1.5 cm long; tube equaling the calyx, distended at the base, interiorly hairy on lobed below. Stamens 4, didynamous; lower filaments longer, edentulate, curved towards each other; anthers perfect, divaricate. Ovary ovoid-conical, placed on a hypogynous disc; style filiform; stigma bilamellate. Capsule oblong-elliptic, included, septicidal; seeds numerous, pitted.

Holotype: *Saldanha* 6733 collected near Waghai on 26 Aug. 1961 and kept in the Blatter Herbarium, St. Xavier's College, Bombay.

Isotypes: *Saldanha* 6730, 6732, 6735.

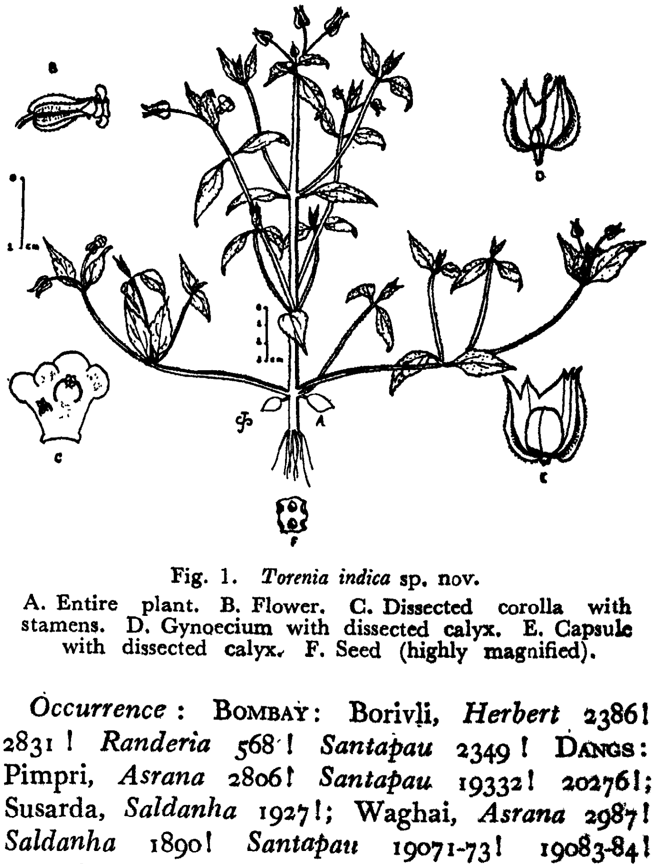

Fig. 1. *Torenia indica* sp. nov.

A. Entire plant. B. Flower. C. Dissected corolla with stamens. D. Gynoecium with dissected calyx. E. Capsule with dissected calyx. F. Seed (highly magnified).

Occurrence: BOMBAY: Borivli, *Herbert* 2386! 2831! *Randeria* 568! *Santapau* 2349! DANGS: Pimpri, *Asrana* 2806! *Santapau* 19332! 20276!; Susarda, *Saldanha* 1927!; Waghai, *Asrana* 2987! *Saldanha* 1890! *Santapau* 19071-73! 19083-84! 19166! 19679! 19993! 20024! 20096-98! KOLABA: Karjat, *Santapau* 15958! 23241!; Neral, *Irani* 4401!

4451! 4602! 5179! North Kanara: Londa, *Blatter* (?) 1553!; Sunksal, *Bell* 3082! Ratnagiri: Katta, *Saldanha* 7070-71! Surat: Bansda Terr. (nr Waghai river), *Saldanha* 6630-34! 6730-35! Thana: Tansa, *Santapau* 15871!; Talasari, *Saldanha* 6815! 6873-75!

2. **Torenia violacea** (Azaolo ex Blanco) Pennell in Journ. Arn. Arb. 24:255, 1943.

Mimulus violaceus Azaolo ex Blanco, Fl. Filip. ed. 2, 357, 1845 & ed. 3, 2: 296, 1878; Merrill, sp. Blanc. 347, 1918, *pro syn.*

Torenia edentula (non Griff.) Benth. ex Hook. in Bot. Mag. t. 4229, 1846; Benth. in DC. Prodr. 10:410, 1846; Prain, Beng. Pl. 767, 1903; Burkill in Rec. Bot. Surv. India 10(2): 327, 1925.

Torenia peduncularis Benth. in Wall. Cat. No. 3956, 1831 (*nom. nud.*); Hook. f. in Fl. Brit. Ind. 4:278, 1884; Haines, Bot. Bih. Or. 629, 1922; Stearn in Chittenden, Dict. Gard. 2127, 1951.

The reduction of the plant, usually known either as *T. peduncularis* or as *T. edentula*, to *Mimulus violaceus* Azaolo ex Blanco has been made on the authority of Merrill and Pennell.

Merrill *l. c.* has the following comment on *Mimulus violaceus*, 'The description is short and imperfect, but there is every reason to believe that Fernandez-Villar was correct in reducing it to the common and widely distributed *Torenia peduncularis* Benth. The species was described by Azaolo, not by Blanco'.

Pennell, in making the combination *Torenia violacea*, wrote 'Although not adopted by Merrill, his evidence makes it necessary to take this as the earliest described name ... *Torenia peduncularis* is the name under which our species has been universally known'.

Description: Annual erect herbs. Stem 4-angled, slightly winged, ciliate at angles, sometimes tinged with purple and rooting at lower nodes. Leaves opposite, decussate, ovate, serrate, petiolate, softly hairy especially on the upper surface; petioles c. 1 cm long; lamina up to 2 × 3 cm. Flowers solitary axillary or in terminal, unequally pedicelled, bracteate racemes. Pedicels prominent, 4-sided, hairy on the angles, up to 2 cm long. Calyx bilipped, broadly winged, elliptic in outline, 1 cm in flower, 1.5 cm in fruit; wings ciliate, narrowed at base, decurrent. Corolla bilipped, c. 2 cm long; tube bluish violet, emarginate; lower lip 3-lobed, deep purple except for a bright yellow patch in the throat. Stamens 4, didynamous; filaments arched, non-appendiculate; anthers perfect, divaricate, connivent with opposite pair. Ovary sub-conical, on a hypogynous disc; style slender, longer than the calyx; stigma bilamellate. Capsule narrow, acute at tip, slightly shorter than calyx; seeds numerous, minute, foveolate.

Type: *Mimulus violaceus* Azaolo ex Blanco from Calauang, Philippines. The specimen has not been located.

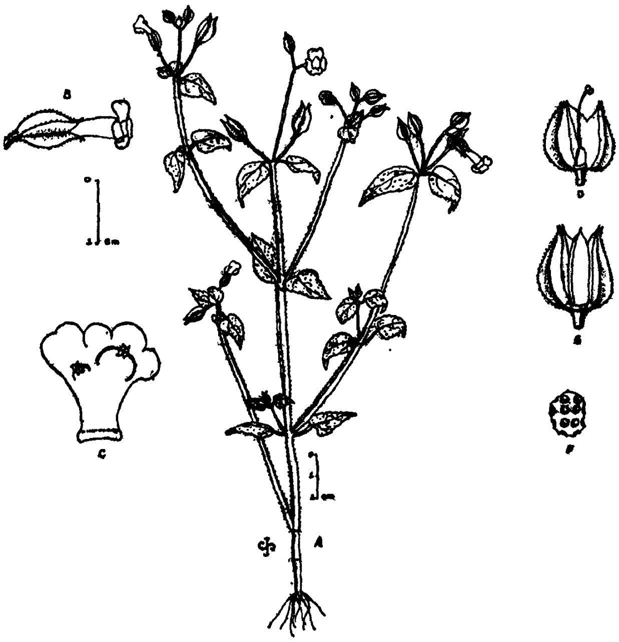

Fig. 2. *Torenia violacea* (Azaolo ex Blanco) Pennell A. Entire plant. B. Flower. C. Dissected corolla with stamens. D. Gynoecium with dissected calyx. E. Capsule with dissected calyx. F. Seed (highly magnified).

Occurrence: The only specimens from the area under study were collected in forest undergrowth on the top of Elimali Hill (c. 300 m) near Cannanore—*Saldanha* 7293-98! The plant which was locally abundant has not been previously reported from peninsular India.

3. **Torenia thouarsii** (Cham. & Schlechtend.) O. Kuntze, Rev. Gen. Pl. 2:468, 1891.

Nortenia thouarsii Cham. & Schlechtend. in Linnaea 3: 18, 1828.

Torenia parviflora Buch.-Ham. ex Benth. Scroph. Ind. 39, 1835 & in DC. Prodr. 10:410, 1846; Hook. f. in Fl. Brit. Ind. 4:278, 1884; Wettst. in Engl. & Prantl, Pflanzenfam. 4(3b): 79, 1891; Gamble, Fl. Madr. 957, 1923.

Description: Erect or procumbent annual herbs. Stem 4-angled, slightly winged at angles, rooting at lower nodes, with spreading branches. Leaves opposite, decussate, petiolate; petiole up to 0.5 cm long; lamina ovate, serrate, penninerved, softly hairy, up to 1 × 1.5 cm. Flowers axillary, usually fasciculated. Pedicels 0.5-1 cm long. Calyx obliquely bilipped, divided to about 1/4 its length, c. 0.5 cm long; upper lip 2-lobed, slightly curved;

lower lip 3-lobed; dorsal ridge of each sepal narrowly winged and ciliate in flower, ribbed in fruit. Corolla bilipped, 1 cm long, pink except for white spot on centre of lower lip; upper lip triangular, entire; lower lip 3-lobed. Stamens 4, didynamous; upper filaments shorter, inserted at top of tube; lower filaments longer, appendiculate, arched, inserted in throat; anther-cells divaricate, connivent with opposite pair. Ovary elongated, on a hypogynous, glandular, cupular disc; style filiform, 0.5 cm long; stigma bilamellate. Capsule narrow, elongated, included, septicidal; seeds numerous, minute, pitted.

Type: *Nortenia thouarsii* Cham. & Schlechtend. Specimen not located. The most complete set of Chamisso's collection is said to be in Leningrad. Prof. Vassilczenko of the Komarov Botanical Institute informs us that they do not possess the type.

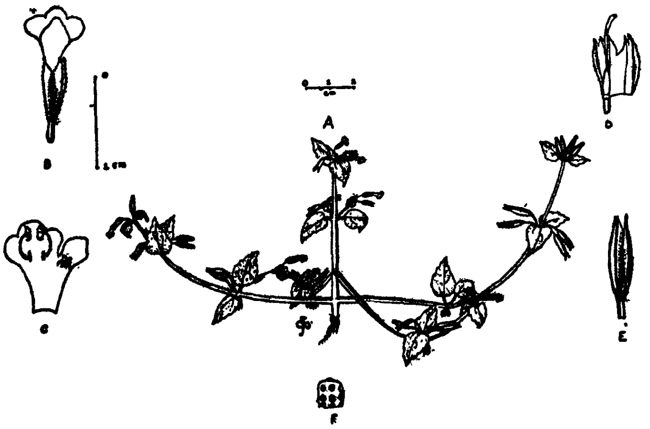

Fig. 3. *Torenia thouarsii* (Cham. & Schlechtend.) O. Kuntze. A. Entire plant. B. Flower. C. Dissected corolla with stamens. D. Gynoecium with dissected calyx. E. Fruiting calyx. F. Seed (highly magnified).

Occurrence: NORTH KANARA: Honavar, *Saldanha* 8511-26! SOUTH KANARA: Belthangady, *Saldanha* 6438-39!; Belve, *Saldanha* 5865-69!; Parappa, *Fischer* 4520!

A rare plant not previously reported from western peninsular India.

4. **Torenia bicolor** Dalz. in Hook. Kew Journ. Bot. 3: 38, 1851; Dalz. & Gibs. Bomb. Fl. 181, 1861; Hook. f. in Fl. Brit. Ind. 4:278, 1884; Cooke, Fl. Bomb. 2:293, 1905; Gamble, Fl. Madr. 957, 1923; Santapau in Journ. Bomb. Nat. Hist. Soc. 49: 36, 1950.

Description:. Annual, decumbent herbs. Stem diffuse, 4-angled, ciliate on ridges, especially near the nodes. Leaves opposite, petiolate; mature petioles c. 1 cm long, pubescent; lamina triangular-ovate, serrate, acute at apex, subcordate at base, pubescent, with 4-5 pairs of veins. Flowers axillary, solitary; pedicels well developed, c. 2 cm in flower, up to 3 cm in fruit. Corolla zygomorphic, c. 3 cm long; tube slightly curved, deep purple; upper lip erect, slightly emarginate, deep purple; lower lip 3-lobed; lobes rounded, whitish. Stamens 4, didynamous; lower filaments arched, with filiform appendages; anther-cells divaricate, connivent with opposite pair. Ovary narrow, elongated; style slightly curved, filiform; stigma bilamellate. Capsuple narrow, elongated, included, septicidal; seeds numerous, minute, sub-spherical, foveolate.

Type: *Torenia bicolor* Dalz. ex Herb. Dalz. (K)!

Occurrence: CANNANORE: Taliparamba, *Madr. Herb.* sr. no. 85769! CHIKMAGALUR: Charmadi Ghat, *Saldanha* 6096! COORG: Mercara, *A. S. Rao* 74539! ERNAKULAM: Cochin, *Meebold* 12320! KOTTAYAM: Kanjirapally, *Saldanha* 7866-73! KOZHIKODE: Lakkidi, *Saldanha* 7491-96! NORTH KANARA: Castle Rock, *Meebold* 9466! *Sedgwick* 2472!; Honavar, *Saldanha* 8509-10!; Nilkund Ghat, *Talbot* 794!; Samkhand, *Sedgwick* 6968! SHIMOGA: Agumbe, *Raghavan* 67813! *Saldanha* 6039! SOUTH KANARA: Belthangady, *Saldanha* 6419-20! 6433-34!; Charmadi Ghat, *Saldanha* 6250-53!; Someshwar, *saldanha* 6036-38! 6040-41!; Sullia, *Barber* 2075! *Saldanha* 6341-42!

An elegant little plant in moist, shaded soil at the end of the monsoon. It does not seem to occur to the north of Ratnagiri.

5. **Torenia lindernioides** sp. nov.

This is an enigmatic little plant that has often been included under *Lindernia crustacea* (L.) F. v. Muell. But it differs from the latter in the structure of the calyx and of the capsule.

Torenia lindernioides has a distinctly winged calyx which completely encloses the mature capsule. The capsule is elongated, elliptic in outline and narrowed at the top. *Lindernia crustacea*, however, has sepals that are, at most, slightly thickened in the middle and never invest the capsule completely. Its mature capsule is obovate with a broad, rounded apex that projects beyond the cup-shaped calyx. The corollae are very similar in structure but can be differentiated by the colour of the upper part which is a light pink in the case of *Torenia lindernioides* and a diffuse violet-purple in *L. crustacea*.

The inclusion of this plant in the genus *Torenia* might, at first sight, appear doubtful. The limits of the genera *Torenia* and *Lindernia* are not easy to define. *Lindernia crustacea* itself has been considered a *Torenia* by not a few authors. We have, for the present, followed Pennell in Journ. Arn. Arb. 24: 254, 1943, where he transfers *Lindernia crenata* Pennell to the genus *Torenia* with the following remark, 'In our first species, *Torenia crenata*, the small flowers, unwinged calyx and foliose bracts all led me to consider it a *Lindernia*, but I now incline to place generic value on another feature of the calyx. In *Lindernia* the sepals whether distinct or joined, do not invest the capsule, but have their tips somewhat spreading, whereas in *Torenia* the sepals do invest the capsule, being curved above it with their connivent tips projecting above it'.

T. lindernioides has a calyx with lobes united almost to the top and completely enclosing the mature capsule. Further, the calyx is clearly winged as in the majority of *Torenias*. It thus forms the link between the genera *Torenia* and *Lindernia*, being very close to the Sect. *Torenioides* of the latter genus.

Descriptio: Herba annua; *caules* 4-goni, prius erecti, tum ramis diffusis prostratis praediti; *folia* opposita, decussata, petiolata, ovata crenato-serrata, glabra, petiolis c. 0.5 cm, laminis penninervis, c. 1 × 1 cm. *Flores* zygomorphi, axillares, solitarii; *calyces* regulariter 5-dentati, distincte alati, alis ciliatis; *corollae* bilabiatae, tubo dorsiventraliter compresso, roseo, labio superiore breviore, bifido, inferiore vero 3-lobato, albo sed macula media purpurea ornato; *stamina* 4, didynama; *filamenta* inferiora superioribus longiora, appendiculata, curvata, super tubum pilis glandulosis prolongata; *antherae* perfectae, divaricatae, cum oppositis conniventes. *Ovarium* ovoideum disco hypogyno insidens, stylis filiformibus, stigmatibus bilamellatis. *Capsulae* ellipticae, apice angustatae, inclusae, seminibus pluribus, minutis, rotundatis, foveolatis.

Holotypus: *Sedgwick* 2511 lectus ad Dandelli, N. Kanara, mense maii 1919 et in Blatter Herbario (BLAT), Collegii Sti Francisci Xaverii, Bombay, positus.

Paratypi: *Saldanha* 7509-10 & 7432, *Santapau* 10828, *Sedgwick* 2433.

Description: Annual herbs. Stem erect at first, with diffuse, prostrate branches later on. Leaves opposite, decussate, petiolate, ovate, crenate-serrate, glabrous; petioles c. 0.5 cm long; lamina penninerved, c. 1 × 1 cm. Flowers zygomorphic, axillary, solitary. Calyx equally 5-toothed, clearly winged; wings ciliate, c. 0.4 cm. Corolla bilabiate; tube dorsiventrally compressed, pink, 0.8 cm long; upper lip shorter, bifid; lower lip 3-lobed, white except for a purple spot in the middle. Stamens 4, didynamous; lower filaments longer, appendiculate, curved, prolonged as a line of glandular hairs on the tube; anthers perfect, divaricate, connivent with opposite pair. Ovary ovoid, situated on a hypogynous disc; style filiform; stigma bilamellate. Capsule elliptic, narrowed at top, included; seeds numerous, rounded, foveolate.

Holotype: *Sedgwick* 2511 collected at Dandelli, N. Kanara in May, 1919 and deposited in the Blatter Herbarium, St. Xavier's College, Bombay.

Paratypes: *Saldanha* 7509-10 & 7432 *Santapau* 10828, *Sedgwick* 2433.

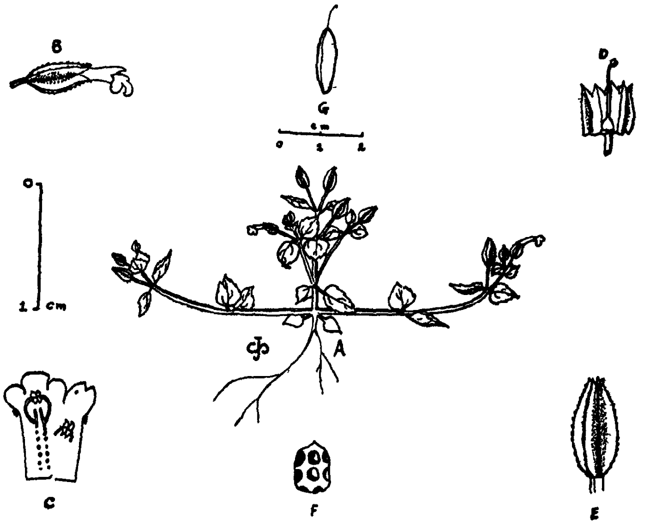

Fig. 4. *Torenia lindernioides* sp. nov.
A. Entire plant. B. Flower. C. Dissected corolla with stamens. D. Gynoecium with dissected calyx. E. Fruiting calyx enclosing capsule. F. Seed (highly magnified). G. Capsule.

Occurrence: KOZHIKODE: Chundale, *Saldanha* 7432!; Kamblakad, *Saldanha* 7509-10! NORTH KANARA: Dandelli, *Sedgwick* 2511!; Ekambi, *Puri* 11722!; Londa, *Santapau* 10828!; Supa, *Ritchie* 1138! SHIMOGA: Agumbe, *Raghavan* 80803! 80872!

The plant is fairly widespread although poorly represented in our Herbaria. It is interesting to note that *Santapau* 10828 (BLAT) and *Fischer* 859 (CAL) have been identified as *Toreniae* because of their winged calyces.

6. **Torenia travancorica** Gamble, Fl. Madr. 957, 1923; Hill in Bot. Mag. t. 9615, 1942; Stearn in Chittenden, Dict. Gard. 2127, 1951.

Torenia asiatica Hook. f. in Fl. Brit. Ind. 4:277, 1884, *pro parte*.

Torenia leucosiphon Alston in Trimen, Handb. Fl. Ceyl. 6: 212, 1931.

We have followed Stearn in considering *T. leucosiphon* Alston as a synonym of *T. travancorica* Gamble. The only difference between them seems to be the white corolla-tube in the former and the yellow tube in the latter.

Description: Annual, prostrate herbs. Stem 4-angled, glabrous, slender, diffuse; internodes up to 10 cm. Leaves opposite, decussate, ovate-lanceolate, serrate, often acuminate; petiole c. 1 cm; lamina penninerved, glabrous or pubescent, up to 1.5×5 cm. Flowers solitary, axillary; pedicels up to 4 cm; calyx narrow, bilipped, divided to 1/4 its length, c. 1.5 cm long; lobes acuminate, slightly keeled, decurrent, moderately pubescent. Corolla zygomorphic, up to 3 cm long; tube bright yellow, rarely white (Gamble, Alston); limb purple with broad upper lip and 3-lobed lower lip. Stamens 4, didynamous; lower filaments arched, with subulate or rod-like appendages; anthers divaricate, connivent. Ovary elongated, on a hypogynous disc; style slightly hairy and geniculate at base, broader at tip, c. 3 cm long; stigma bilamellate, with acute tip. Capsule narrow, included; seeds numerous, minute, pitted.

Type: *Torenia travancorica* Gamble probably at Kew. There are numerous sheets identified by Gamble himself at Coimbatore (MH) and at Calcutta (CAL). All of them have a distinctly yellow tube.

Occurrence: KOTTAYAM: Changanacherry, *Saldanha* 7845-55! ; Kanjirapally, *Meebold* 156! *Saldanha* 7874-75!; Peermade, *Saldanha* 7917-18!; Thekkadi, *Jacob* 17780! TRIVANDRUM: Ponmudi, *Barnes* sr. no. 87284!

Fairly common in central Kerala during the post-monsoon period from September onwards. Easily recognised by the bright yellow corolla-tube.

7. **Torenia hirsuta** Willd. Sp. Pl. 3: 266, 1800; Benth. in DC. Prodr. 10: 410, 1846; Hook. in Bot. Mag. t. 5167, 1859; Gamble, Fl. Madr. 957, 1923; Stearn in Chittenden, Dict. Gard, 2127, 1951.

Torenia asiatica L. var. *hirsuta* (Willd.) Hook. f. in Fl. Brit. Ind. 4: 277, 1884.

Torenia asiatica auctt. pl. *pro parte*.

Description: Annual, creeping herbs. Stem 4-angled, hirsute, rooting at nodes, with internodes up to 4 cm long. Leaves opposite, decussate; petioles c. 1 cm long, hairy; lamina ovate-deltoid, serrate, truncate or sub-cordiform at base, acute at apex, densely hairy, penninerved, up to 2 × 3 cm, usually smaller. Flowers solitary, axillary; pedicels hirsute, up to 5 cm long. Calyx bilipped, divided to 1/4 its length, tubular, hairy, neither keeled nor ribbed; upper lip 3-toothed; lower lip 2-toothed. Corolla zygomorphic, over 3 cm long; tube deep purple, 1½ length of calyx; upper lip erect, broad, rounded, pale blue to lilac; lower lip 3-lobed; lateral lobes deep purple; lower central lobe purple towards margin, white towards throat. Stamens 4, didynamous; lower filaments longer, appendiculate, arched; anthers perfect, divaricate, connivent. Ovary on a hypogynous disc; stigma bilamellate. Capsule included in the reticulate, scarious, persistent calyx; seeds minute, numerous, pitted.

Type: *Torenia hirsuta* Willd. There is no specimen in the Willdenow collection at Berlin-Dahlem. Willdenow seems to have based his species on Lam. Illus. Gen. t. 523, fig. 1(2), 1794. This figure shows the terminal portion of the plant. It has no adventitious roots at the nodes. The illustration could explain the characters 'caulis erectus' and 'flores minores' mentioned by Willdenow in his type description. Our plant, on the contrary, has a creeping stem and comparatively large flowers. It agrees perfectly with *T hirsuta* Benth. as regards habit and locality. The question whether *T. hirsuta* Willd. and *T. hirsuta* Benth. denote one and the same plant is bound to arise. A satisfactory answer can be given only when the actual specimen on which Lamarck's drawing was based has been located. We have secured a photograph of a specimen in the Lamarck collection (P), labeled *T. hirsuta,* through the kindness of Prof. Aubreville. But this specimen does not seem to be a *Torenia* at all. The problem, therefore, has not been solved. If Willdenow and Bentham are referring to different plants, then, Bentham's plant has to be renamed. We have provisionally assumed the conspecificity of *T. hirsuta* Willd. and *T hirsuta* Benth.

Occurrence: KOZHIKODE: Meppadi, *Saldanha* 7540-52! NILGIRIS: Gudalur, *Narayana & Raju* 18487! ; Ochterloney Valley, *King* s. n.! ; Pandalur, *Barber* 5583! ; Sispara Ghat, *Gamble* 13434!

A pretty plant occurring in the Kerala, Nilgiri and Coimbatore hills between 700-2,000 m from August to January. It does not occur in the northern districts of our region.

T. courtallensis Gamble and *T. vagans* Roxb. have not been found in the area under study though they are fairly common on the drier, leeward side of the S. Indian mountains.

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